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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/734,344

12/11/2003

Aris Papasakellariou

TI-36340

3656

23494 7590 02/09/2007
TEXAS INSTRUMENTS INCORPORATED
P O BOX 655474, M/S 3999
DALLAS, TX 75265

EXAMINER

AGHDAM, FRESHTEH N

ART UNIT

PAPER NUMBER

2611

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
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3 MONTHS

02/09/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/734,344

Applicant(s)

PAPASAKELLARIOU, ARIS

Examiner

Freshteh N. Aghdam

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 December 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the limitations of means for measuring the speed of the mobile communication device; means for measuring a channel quality indicator; and means for using the measurements of speed and channel quality indicator to determine a value for adaptation coefficient of an adaptive equalizer must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

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the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

Claims 1 and 8 are objected to because of the following informalities:

As to claim 1, line 8, the phrase "the adaptation coefficient" lacks antecedent basis.

As to claim 8, line 5, the phrase "the adaptation coefficient" lacks antecedent basis.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-2, 7-9, and 14 are rejected under 35 U.S.C. 102(a) as being anticipated by the instant application's disclosed prior art.

As to claims 1 and 8, the instant application's discloses prior art discloses a mobile communication system comprising receiving a spread spectrum signal, which includes a common pilot channel (CPICH) that carries known or pilot data (Pg. 2, Lines 8-13), wherein channel equalization within the receiver includes measuring the speed of

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the mobile communication device (Pg. 5, Lines 3-5); measuring a channel quality indicator (such as SNR; Pg. 4, Lines 13-20); using the speed measurement and channel quality measurement to determine a value for the adaptation coefficient of an adaptive equalizer (Pg. 5, Lines 3-10); and using the adaptation coefficient and said adaptive equalizer to perform equalization of the data signal. One of ordinary skill in the art would recognize that it is inherent for the data portion of the received signal to be received on a dedicated physical data channel according to 3GPP and 3GPP2 standards.

As to claims 2 and 9, the instant application's disclosed prior art discloses that the channel quality indicator is signal to noise ratio (Pg. 2, Lines 8-13; Pg. 4, Lines 13-20).

As to claims 7 and 14, the instant application's disclosed prior art discloses measuring speed of the communication device includes performing Doppler shift estimation (Pg. 5, Lines 3-5).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the instant application's disclosed prior art, and further in view of Farhang-Boroujeni et al hereafter referred to as Farhang (US 6,990,153).

As to claims 3 and 10, the instant application's disclosed prior art discloses all the subject matter claimed in claims 1 and 8, except for the channel quality indicator is signal to noise ratio of at least one DPDCH signal. Farhang discloses a receiver system that utilizes at least one DPDCH signal (i.e. the data signal) for channel estimation (Fig. 3, means 317, 319-320, and 325; Col. 5, Lines 12-43). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Farhang with the instant application's disclosed prior art in order to provide a channel estimation scheme with a good performance in a communication channel having varying frequency and time characteristics, while preserving the usable bandwidth of the communication channel by utilizing the data signal for channel estimation (Col. 3, Lines 14-18).

Claims 4-6 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the instant application's disclosed prior art, and further in view of Hooli et al (Chip-Level Channel Equalization in WCDMA Downlink, EURASIP Journal on Applied Signal Processing 2002:8, pages 757-770, 2002 Hindawi Publishing Corporation).

As to claims 4 and 11, the instant application's disclosed prior art discloses all the subject matter claimed in claims 1 and 8, except for the adaptive equalizer is a NLMS (normalized least mean squared) adaptive equalizer. Hooli discloses a terminal receiver in a WCDMA communication system that utilizes an adaptive NLMS equalizer,

wherein utilizing an adaptive NLMS equalizer is the most straightforward solution to the adaptation of a chip level equalizer and consequently detection/ estimation of the transmitted data in the receiver (Pg. 760, Section 4.1; Fig. 1). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Hooli with the instant application's disclosed prior art for the reason stated above.

As to claims 5 and 12, the instant application's disclosed prior art discloses all the subject matter claimed in claims 1 and 8, except for the adaptive equalizer is a Griffiths adaptive equalizer. Hooli discloses a terminal receiver in a WCDMA communication system that utilizes an adaptive Griffiths equalizer, wherein utilizing the Griffiths algorithm is a preferred method when a training sequence is not available or is not reliable ([Pg. 761, Section 4.2). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Hooli with the instant application's disclosed prior art for the reason stated above.

As to claims 6 and 13, the instant application's disclosed prior art discloses all the subject matter claimed in claims 1 and 8, except for the adaptive equalizer is a prefilter rake adaptive equalizer. Hooli discloses a terminal receiver in a WCDMA communication system that utilizes an adaptive prefilter rake adaptive equalizer, wherein utilizing a prefilter rake adaptive equalizer provides a significant increase of performance for high data rates. Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Hooli with the instant application's disclosed prior art for the reason stated above.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Petre et al (US 7,158,558) see figures 2-4 and 6; Willenegger et al (US 7,035,284); and Paatelma et al (US 6,029,057) see column 4, lines 40-45.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Freshteh N. Aghdam whose telephone number is (571) 272-6037. The examiner can normally be reached on Monday through Friday 9:00-5:30 pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Freshteh Aghdam
Examiner
Art Unit 2611

F.A


KEVIN BURD
PRIMARY EXAMINER